

Existing Traffic Conditions

Mathilda Avenue, Sunnyvale Avenue, Evelyn Avenue, Washington Avenue, Iowa Avenue, and El Camino Real are the downtown’s major streets. Mathilda Avenue is a six-lane roadway that carries regional north-south traffic. Predominate traffic flows are northbound in the morning and southbound in the evening. It carries approximately 3,000 vehicles per hour (vph) during both the AM peak period and the PM peak period. Opposite direction peak period flows are approximately 800 vph. El Camino Real is a major six-lane east-west roadway. Predominant traffic flows are westbound in the morning and eastbound in the evening. It carries more traffic during the PM peak period than during the AM peak period. In comparison, El Camino carries about half the volume of Mathilda. The other major streets in the downtown area carry considerably less traffic than Mathilda or El Camino in a more balanced flow pattern.

Intersection operations are described in terms of level of service (LOS). LOS A represents good operations with little or no delay and LOS F represents poor operations with longer delays. LOS E represents conditions at capacity. Most of the intersections in the downtown area currently operate at good levels, LOS A and LOS B. The intersection of Mathilda Avenue and Washington Avenue is currently operating at LOS C (average/stable operations). The intersections of Mathilda Avenue and El Camino Real, and Sunnyvale Avenue and El Camino Real operate at LOS D during the morning peak period and LOS E during the evening. These poorer operations are due to heavy volumes on all approaches.

Downtown Traffic Approach Pattern

Turning movements at intersections on the perimeter of the downtown area were reviewed to determine the amount of traffic approaching the downtown area and the percentage of traffic approaching on each roadway. These percentages are also described as the approach pattern. The results are:

Roadway and Direction	Percentage
From the North on Mathilda	30%
From the North on Sunnyvale	7%
From the East on Evelyn	10%
From the East on Washington and McKinley	3%
From the East on El Camino Real	3%
From the South on Sunnyvale	7%
From the South on Mathilda	15%
From the West on Evelyn	10%
From the West on Washington, McKinley, Iowa	10%
From the West on El Camino Real	5%



Future Traffic Volumes

The amount of traffic generated by land uses in the plan was estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment.

First, the changes in land use by block were estimated based on area in square feet or number of residential units. Then, appropriate trip generation rates, based on land use type, were applied to the net change in downtown development to approximate the additional traffic that would be generated with these changes. The trip distribution pattern represents the directions from which project trips arrive and to which they depart. For this analysis, three distribution patterns were initially developed for the three general land use categories of office, retail, and residential uses. These distribution patterns were estimated based on relative locations of complementary uses (such as residential areas for retail and office uses, and employment and shopping areas for the residential uses). Due to the downtown's central location within the city, these distribution patterns are similar and therefore were refined into one distribution pattern for all three uses. Based on the directions of approach and departure described above, net new trip assignments were applied to the roadways within the downtown study area.

Future Traffic Conditions

A preliminary traffic analysis was conducted to determine whether the roadway system in the downtown area would have sufficient capacity to accommodate the projected land use changes envisioned by the Urban Design Plan. This analysis focused on roadway segments. The capacity of each roadway segment was estimated based on the number of travel lanes and percentage of green time at the downstream signal. The volumes on each segment include existing volumes (obtained from available counts), estimates of traffic from planned and approved developments, and estimates of traffic generated by the proposed land use changes. The total volumes were compared to the capacities and the reserve capacity was estimated.

Conclusions and Recommendations – Roadway Capacity

In general, the number of proposed travel lanes (through lanes) on the roadways within the downtown area are adequate to serve the proposed land uses. However, small overages are projected to occur during the peak periods along Washington Avenue and along Sunnyvale Avenue between Evelyn and Iowa. These small overages do not suggest traffic situations that need mitigation. Other locations are projected to have excess capacity, including the sections of Mathilda between Iowa and Washington with four northbound lanes, and Sunnyvale Avenue, between Evelyn and Iowa. The new plan proposes to reduce the fourth (easternmost) northbound lane on Mathilda to create a widened sidewalk and to reduce Sunnyvale between Evelyn and Iowa to three lanes, two northbound and one southbound to create bicycle lanes. It should be noted that the projected PM peak period volume on southbound Sunnyvale is slightly over the capacity of one lane.

Conclusions and Recommendations – Intersections

The intersection of Mathilda Avenue and El Camino Real is projected to continue to operate at LOS E during the PM peak period but to degrade from LOS E to LOS F during the AM peak period with the addition of new Urban Design Plan traffic. AM peak period operations could be improved back to LOS E by either providing a right-turn arrow for the westbound (El Camino) approach during the southbound (Mathilda Avenue) left-turn phase or by reducing northbound Mathilda Avenue through traffic by 350 vehicles. This can be accomplished by diverting traffic to Sunnyvale Avenue via intersection modifications or changes to the signs at the intersection of Sunnyvale-Saratoga Road/Mathilda Avenue. Although it is anticipated

that most northbound traffic will opt to use northbound Mathilda rather than northbound Sunnyvale during the AM peak period (this traffic is primarily regional commute traffic with destinations north of downtown Sunnyvale and not traffic destined for downtown), nevertheless using northbound Sunnyvale Avenue to connect to westbound Evelyn and then to the ramp up to northbound Mathilda provides an alternate route that would allow drivers to avoid the busy El Camino/Mathilda intersection. Intersection modifications and/or changes to the signs designating the way to downtown Sunnyvale at Sunnyvale-Saratoga Road/Mathilda Avenue will divert some northbound traffic away from Mathilda Avenue and toward Sunnyvale Avenue during other periods of the day.

Currently, improvements are planned on the westbound approach to the Washington Avenue/Mathilda Avenue intersection (widening to provide two left-turn lanes, one through lane, and one right-turn lane) in association with approved developments in the area. The level of service at this intersection is projected to be LOS D during the AM, PM, and midday peak periods with implementation of these improvements and the proposed Urban Design Plan. The results also assume that the proposed loop ramp between southbound Mathilda and Evelyn is constructed.

An alternative lane configuration was evaluated for the westbound approach to accommodate a proposed lane reduction on Washington Avenue. The new plan recommends considering five lanes on Washington Avenue between Mathilda Avenue and Taaffe Street narrowing to three plus center median between Taaffe Street and Town Center Lane. East of Town Center Lane, Washington would have two travel lanes with a median island/left-turn pocket at intersections. West of Town Center Lane, Washington would increase in width to two left-



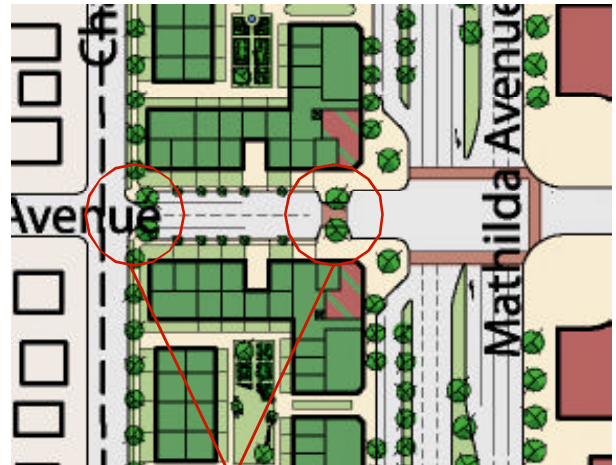
turn lanes and one through/right-turn lane on the westbound approach of the Mathilda Avenue/Washington Avenue intersection. With two left-turn lanes and a through/right-turn lane on the westbound approach, AM and midday peak period operations are projected to be LOS D while the PM peak period operations are projected to be LOS E.

The provision of a separate right-turn lane has some drawbacks because it would need to be 400 feet long to be effective, 240 feet longer than currently planned for the Mozart project. The shorter storage length will result in the right-turn queue backing out of the pocket and blocking the through lane, thus reducing the capacity of this lane. With a shared through/right-turn lane, the projected maximum queue in this lane is estimated to be 575 feet, approximately to the center of the Town Center Lane intersection. This queue is believed to be tolerable for short periods of the day in order to reduce Washington's roadway width and enhance street character.

In the eastbound direction, two travel lanes are recommended between Mathilda and Town Center Lane, where the curb lane would become a right-turn only lane. Two travel lanes are required to accommodate the dual left-turn lanes from southbound Mathilda Avenue.

Neighborhood Traffic Measures

The new plan proposes to protect existing neighborhoods in and near the downtown from potential cut-through traffic and parking generated by existing and added downtown development. Residential gateways are neighborhood markers that create subtle boundaries between the commercial core and downtown residential districts to protect neighborhoods from cut-through traffic and commercial parking. They are recommended at several locations, including the Mathilda/Iowa, Mathilda/McKinley, and on the west side of Mathilda; the Iowa/Taaffe, Iowa/Frances, and Iowa/Murphy intersections on the south side of Iowa; the Sunnyvale/Iowa and Sunnyvale/McKinley intersections on the east side of Sunnyvale; the Washington/Carroll intersection on the east side of Carroll; and at the Sunnyvale/Caltrain railroad crossing. These gateways should convey a sense of limited access, for residents only. Residential gateways should be designed with neighborhood input and could include curb bulbouts at intersection entrances, enhanced crosswalk markings, and signage markers announcing neighborhood identity.



Residential gateways, such as bulb-outs are markers that create subtle boundaries between the commercial and residential areas.

Self-Parked vs. Shared Parking Blocks

The plan analyzes parking based on the premise that Blocks 1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, and 17 will be self-parked, i.e. that a sufficient number of parking spaces will be provided on each block to support its existing and future land uses. Some of the spaces in Block 1 (spaces under the Evelyn plaza and spaces within Mozartparking) will be available for public/shared parking. Blocks 1a, 2, 3, 18, and 18a are evaluated as part of a shared parking program acknowledging that the parking supply on any one block may not be sufficient to accommodate its land uses but the total supply (plus the spaces in the public parking plaza, weekend and evening Mozart spaces, and some Caltrain parking structure spaces) will be available. Block 7, while assumed to be self-parked, is also assumed to have shared parking for the uses within that block. Blocks 14, 15, 16, and 17 are proposed to contain primarily residential uses with some supporting retail. The retail will share parking with the guest parking for the residential uses.

Shared Parking Analysis

A shared parking demand analysis was conducted to determine the overall peak parking demand for the uses in Blocks 1a, 2, 3, 18, and 18a. The analysis excludes residential uses as it is assumed that their demand is accommodated by reserved parking spaces and not the public/shared spaces. The parking analysis was conducted for three scenarios: average weekday conditions, design weekday conditions, and design weekend conditions. The design conditions are intended to represent the 20th highest hour – conditions that occur during the holiday shopping period but not the highest day (it is considered infeasible to design for the highest period as it would result in costly parking structures that would be partially empty during most of the year).

Average Weekday Results. The peak parking demand for the total area on an average weekday is estimated to be approximately 6,000 parked vehicles. The peak demand occurs at 1:00 PM when the retail, office, and restaurant uses are busy. Typically, parking supply is designed to exceed the peak demand by about 10 percent. Therefore, approximately 6,600 parking spaces are recommended to serve the peak parking demand on a typical weekday.

Design Weekday Results. The peak parking demand for the total area on a design weekday is estimated to be approximately 6,650 parked vehicles. More crowded parking conditions are expected and are accepted during the holiday season. Therefore, the parking supply is designed to exceed the peak demand by about 5 percent or 7,000 parking spaces.

Design Weekend Day Results. The peak parking demand for the total area on a design weekend day is estimated to be approximately 6,325 parked vehicles. It is lower than the design weekday because of the much-reduced parking demand for the office uses. Approximately 6,650 parking spaces are recommended to serve the peak parking demand on a design weekend day.

Parking Supply Recommendations. Approximately 6,600 to 7,000 public/shared parking spaces are needed to accommodate the peak parking conditions, based on the assumptions included in this analysis. These parking spaces are provided in several parking structures in the downtown area, as shown on the Urban Design Plan.

Public Transportation

As stated in the 1993 Specific Plan, facilities for a public transit include the Santa Clara County Transit system, Greyhound, and Cal Train. Bus routes merge at Frances Street near the train station, making it a multi modal transportation stop. Figure 7.1 illustrates the transit services.



